Armed Forces College of Medicine

AFCM

Diseases Of the Ear and Larynx

&

Pathology of Bronchiectasis

By

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good morning

The Indian EXPRESS

INTENDED LEARNING OBJECTIVES (ILO)

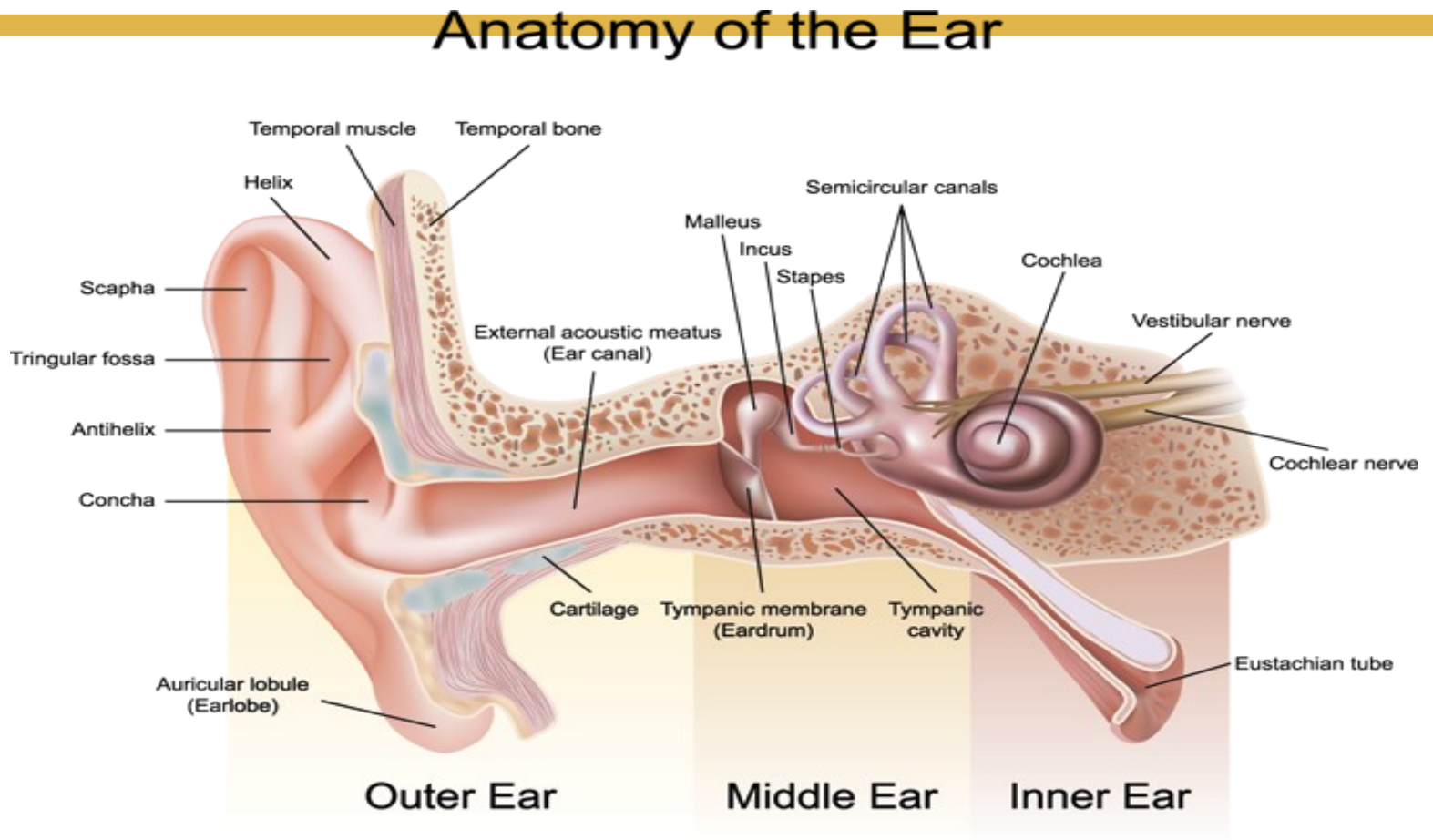
By the end of this lecture the student will be able to:

1. Describe the pathology of acute suppurative otitis media
2. List complications of acute suppurative otitis media
3. Discuss the pathology of acute and chronic laryngitis
4. Describe the pathology of singer nodule
5. Explain the pathogenesis of bronchiectasis
6. Determine the gross and microscopic picture of bronchiectasis
7. List complications of bronchiactasis

Lecture Plan

1. Part 1 (5 min) Introduction
2. Part 2 (35 min) Main lecture
3. Part 3 (5 min) Summary
4. Lecture Quiz (5 min)

Diseases of the Ear



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Acute suppurative Otitis Media

Etiology:

Infection of the middle ear through the ***Eustachian tube*** due to pathogenic bacterial infection.

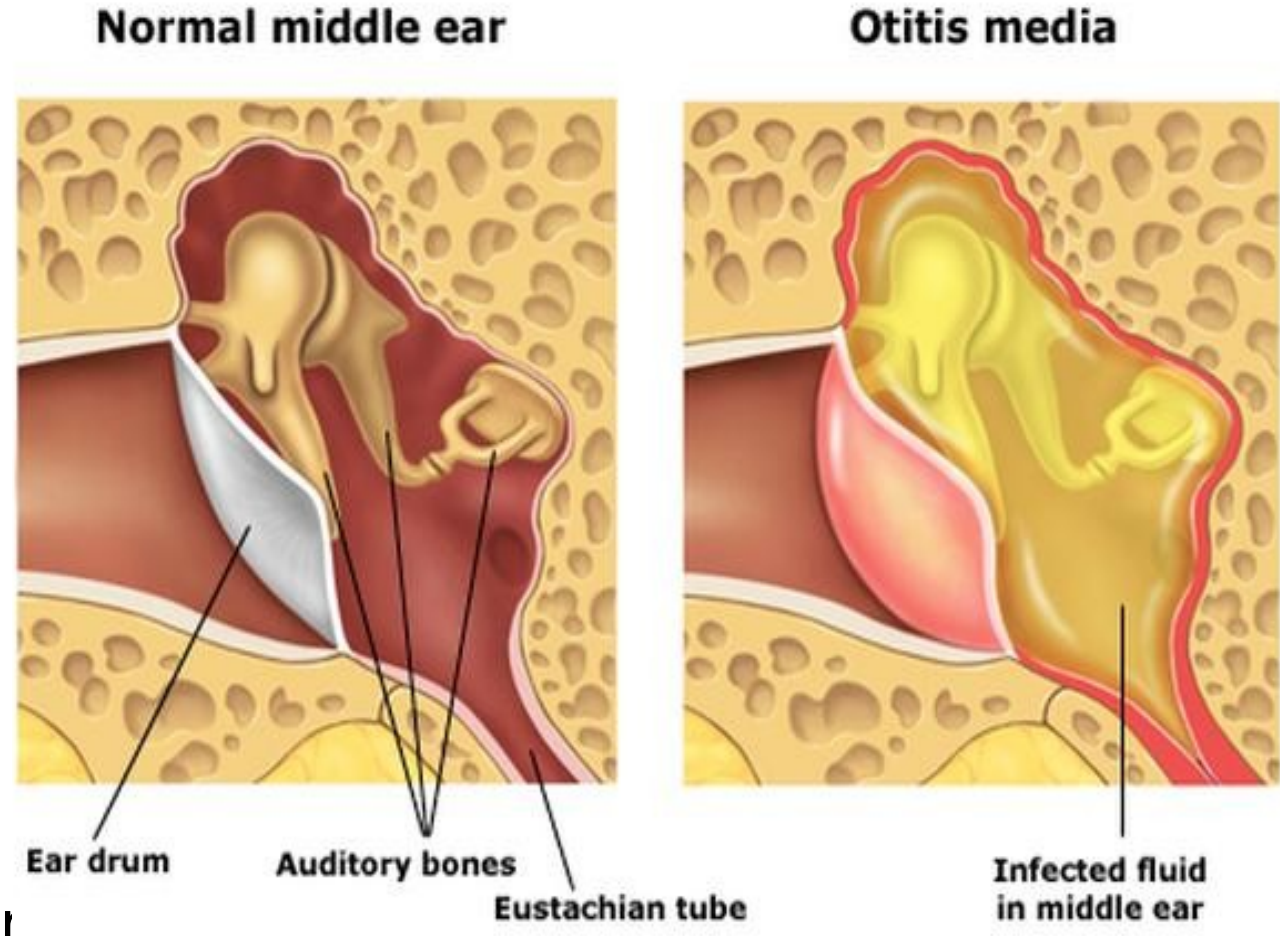
Predisposing factors:

Nasopharyngitis, tonsillitis, and adenoids due to obstruction of Estachian tube provide a source of infection to the middle ear.

Pathology:

1- Acute suppurative inflammation.

2-Pus accumulates in the middle ear cavity causing bulging of the tympanic membrane which may perforate



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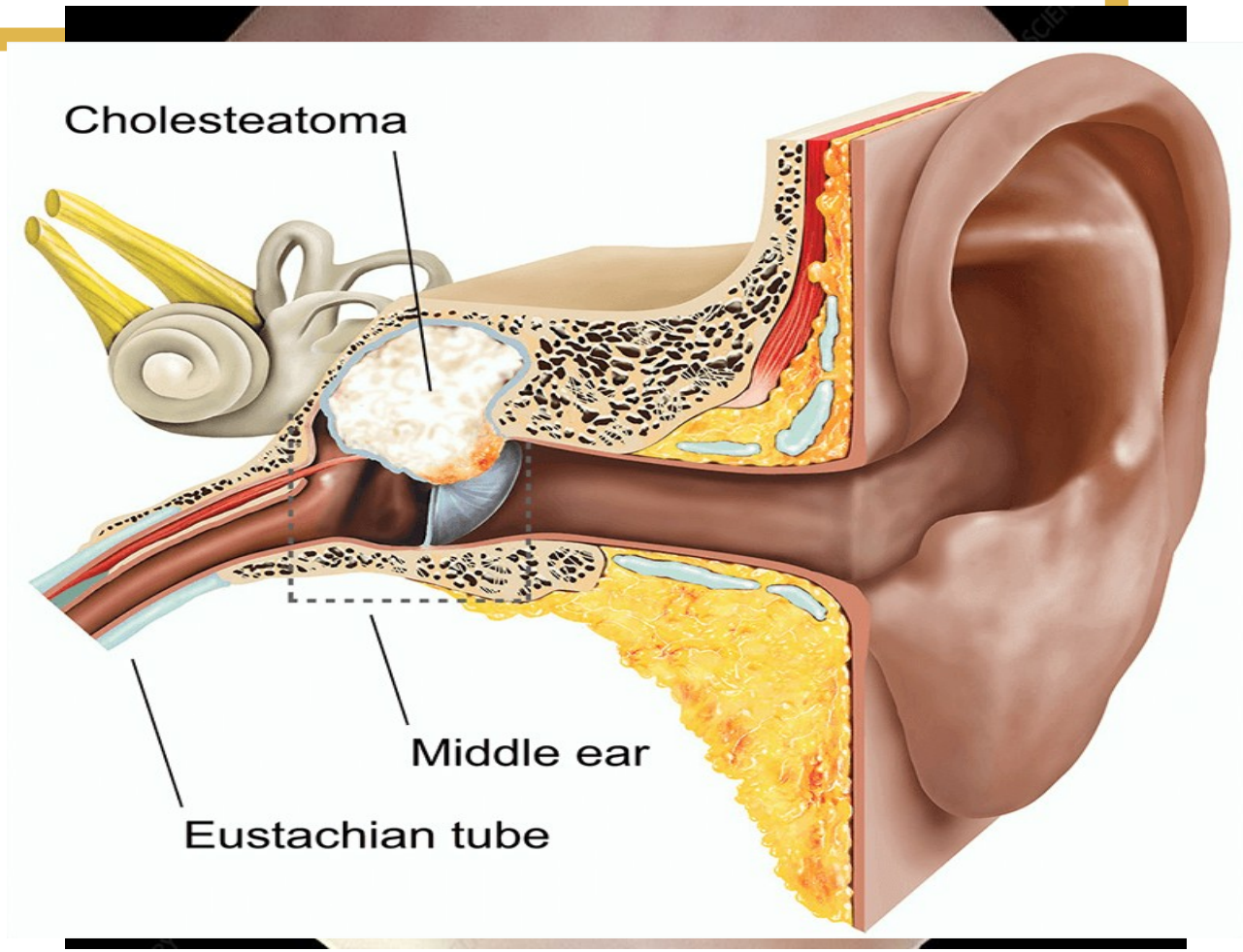
Acute suppurative Otitis Media

Complications:

1) Spread of infection leading to mastoiditis &Intracranial infections as ***meningitis and brain abscess***.

2) Aural polyp: mass of **granulation tissue.**

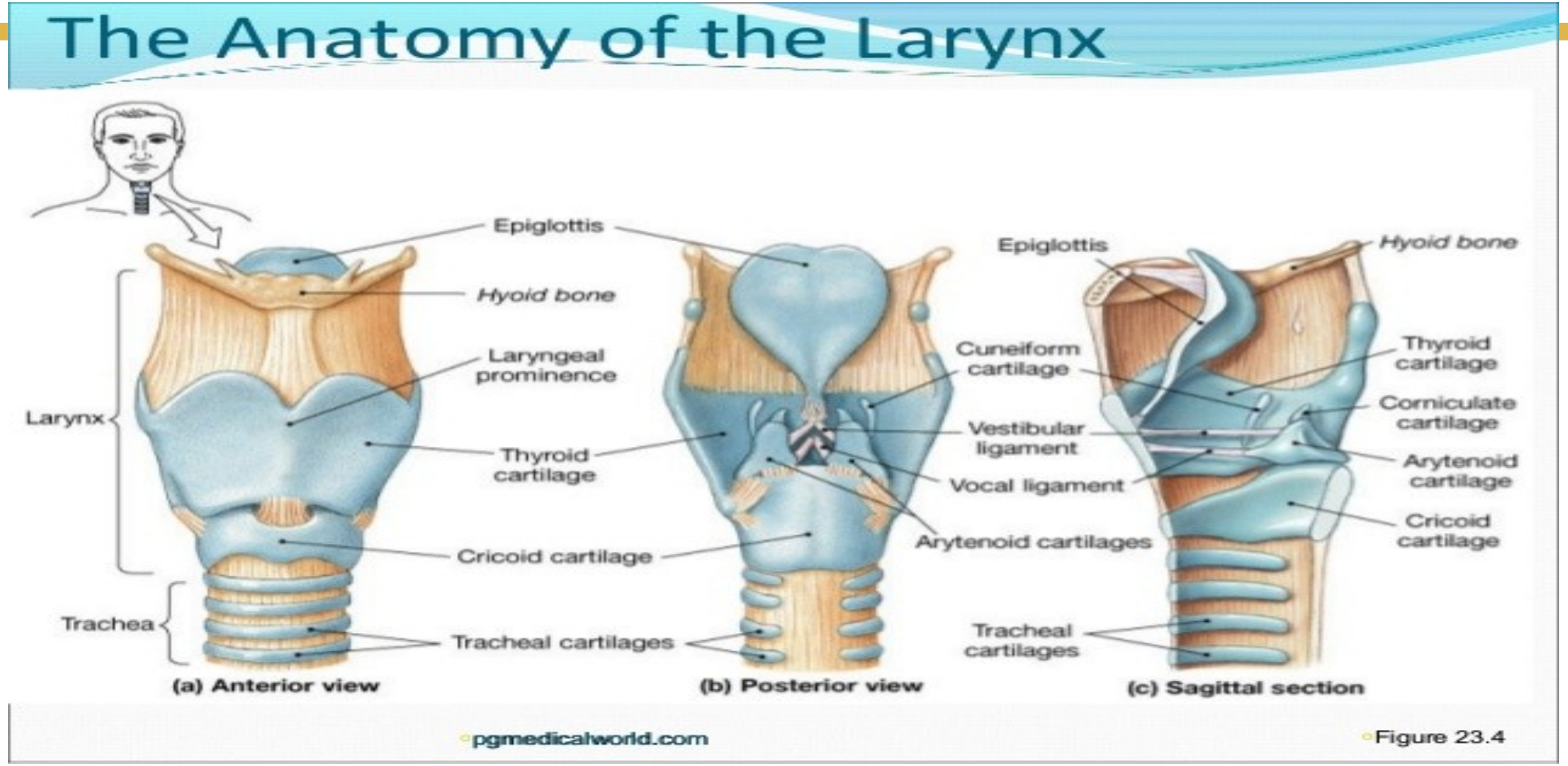
3) Chronic suppurative otitis media leading to ***cholesteatoma*** *(it is ingrowth of keratinizing squamous epithelium from the tympanic*



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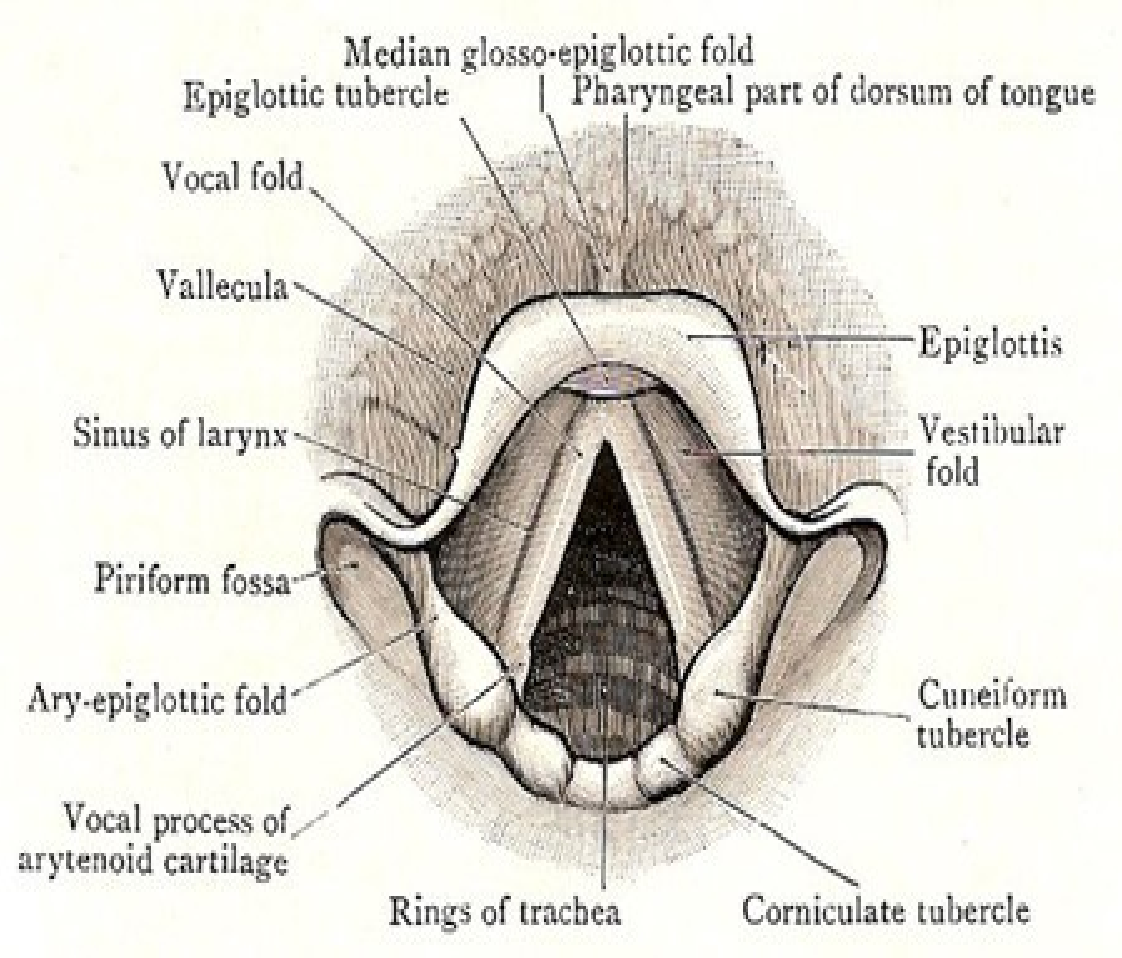
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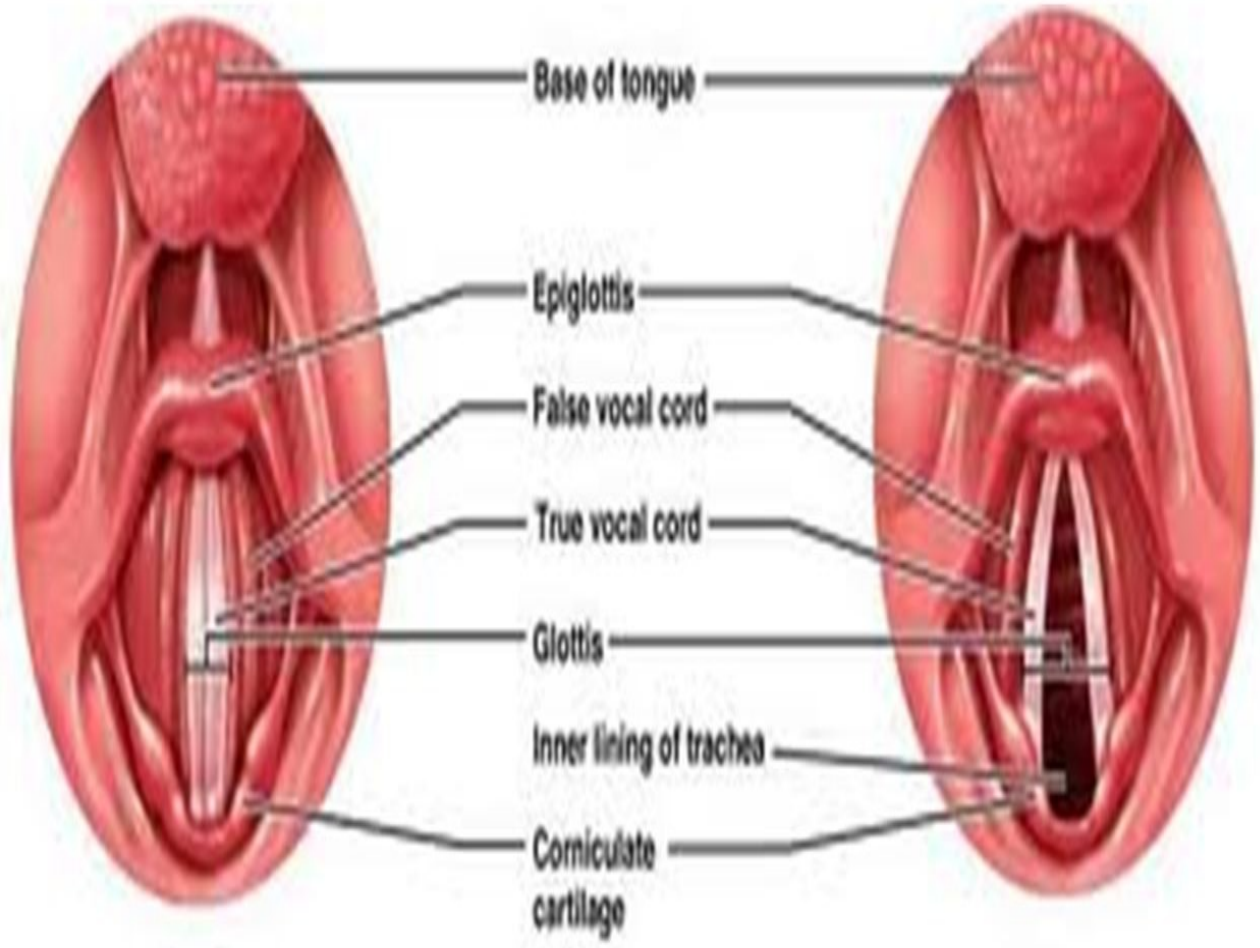
Diseases the larynx



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Anatomy of the larynx





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Laryngitis

1- Acute laryngitis: usually catarrhal in nature

Causes:

- Spread from near-by viral or bacterial infections (as rhinitis, tonsillitis).
- Air pollutants.
- Tobacco smoking.
- Voice abuse (e.g. singers and teachers).

2- Chronic laryngitis: It may be:

A- Chronic non-specific laryngitis:

may follow acute laryngitis (especially caused by excessive smoking and over-use of voice) or due to chronic alcoholism.

B- Chronic specific laryngitis:

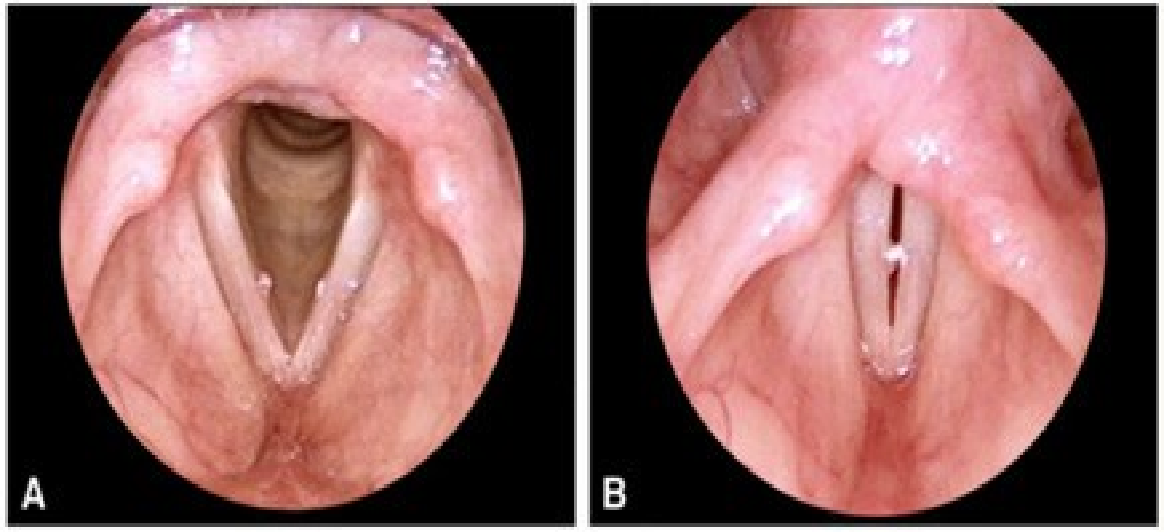
Laryngeal nodule (Singer's nodule)

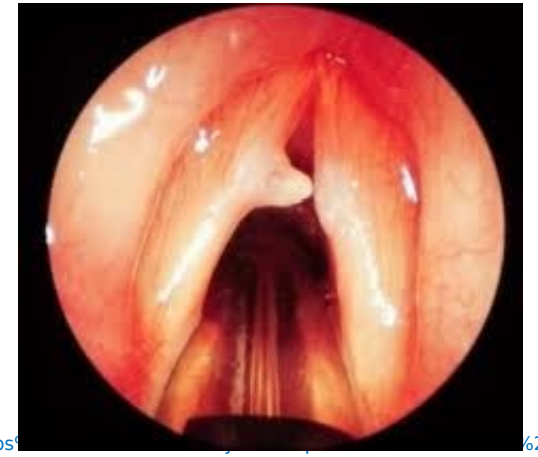
Site: The middle third of the vocal cord.

Nature: *Inflammatory non neoplastic nodule* occurs due to abuse of voice.

Clinically: it causes hoarseness of voice.

Grossly: firm grayish rounded nodule, covered by laryngeal mucosa.





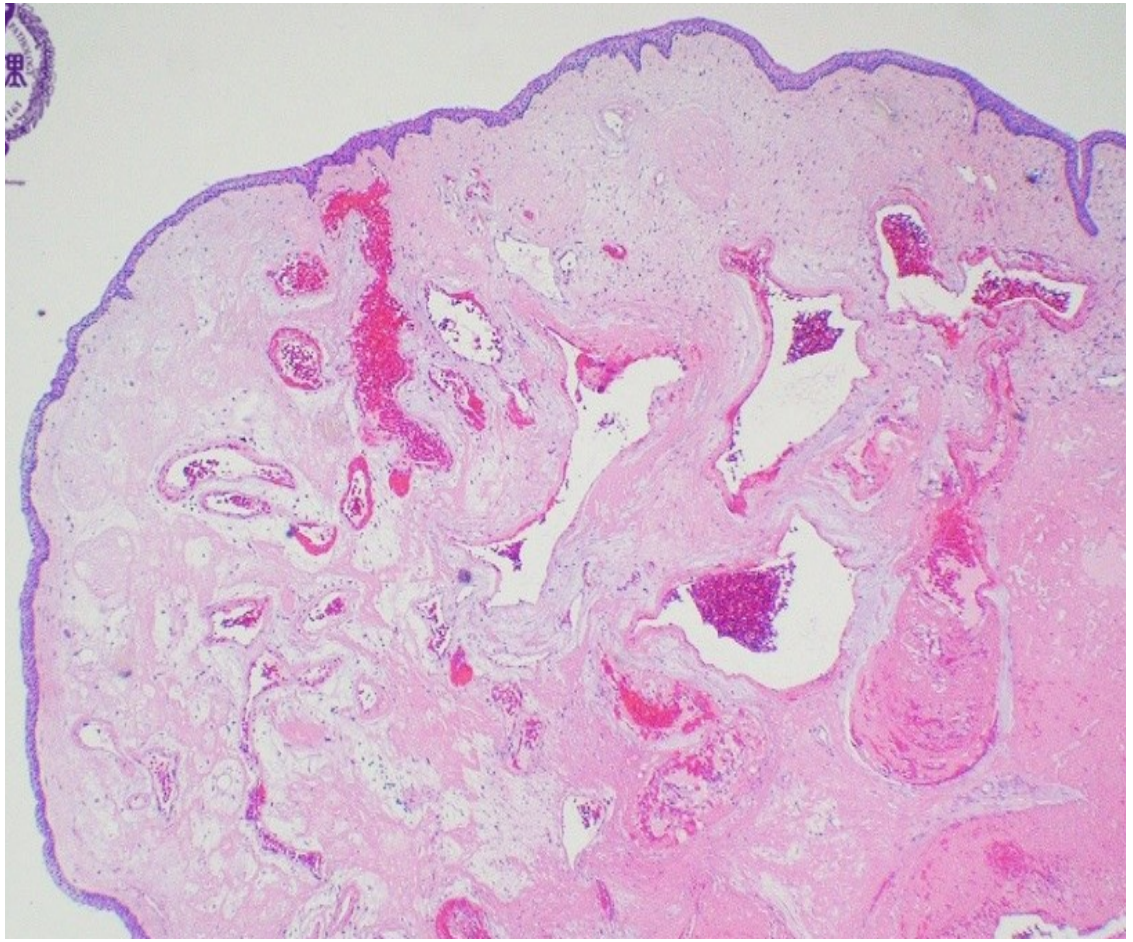
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Laryngeal nodule (Singer's nodule)

Microscopically:

It is formed of dilated blood spaces, fibrosis and myxomatous degeneration.



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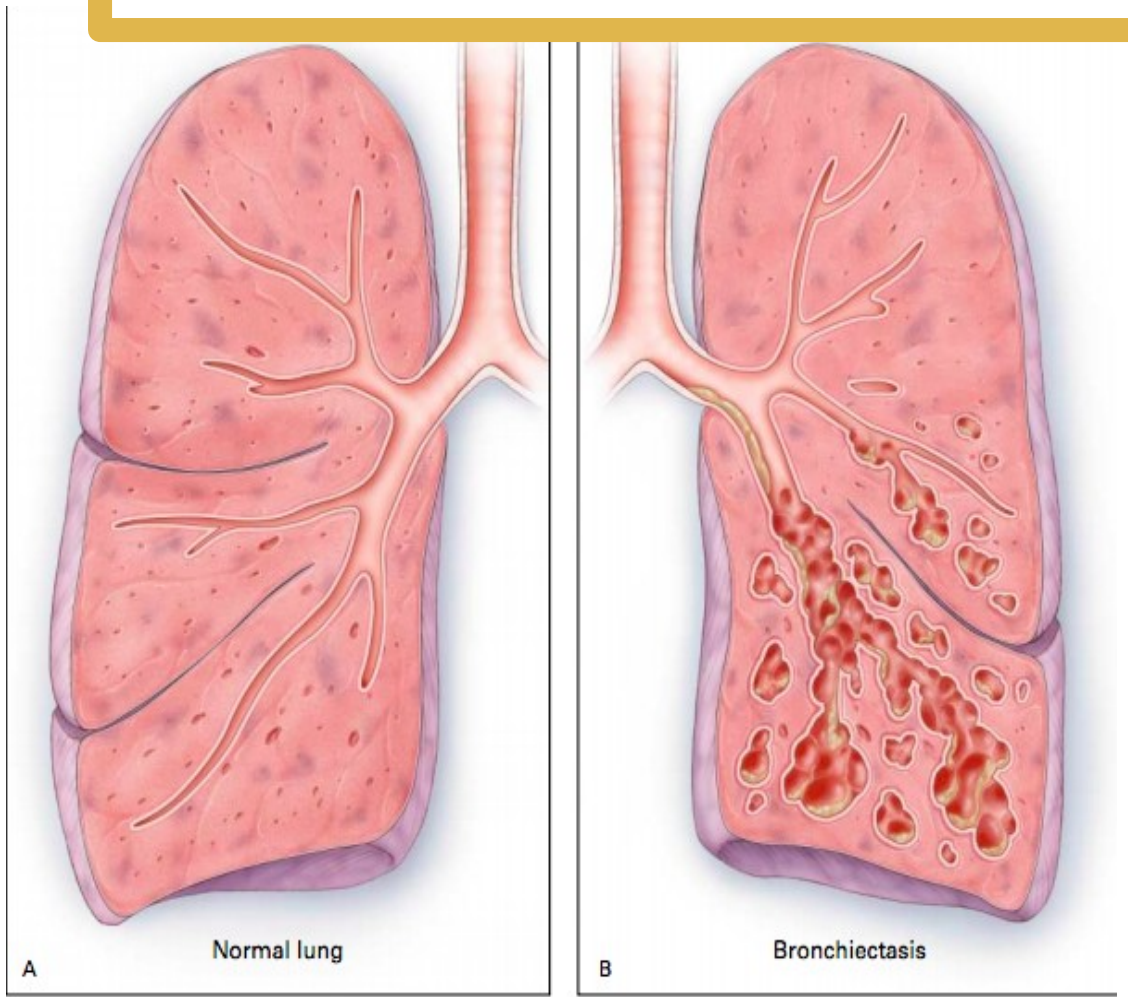
Bronchiectasis

Definition: It is chronic suppurative irreversible inflammation characterized by *permanent dilatation of the medium sized bronchi and bronchioles accompanied by destruction of their walls.*

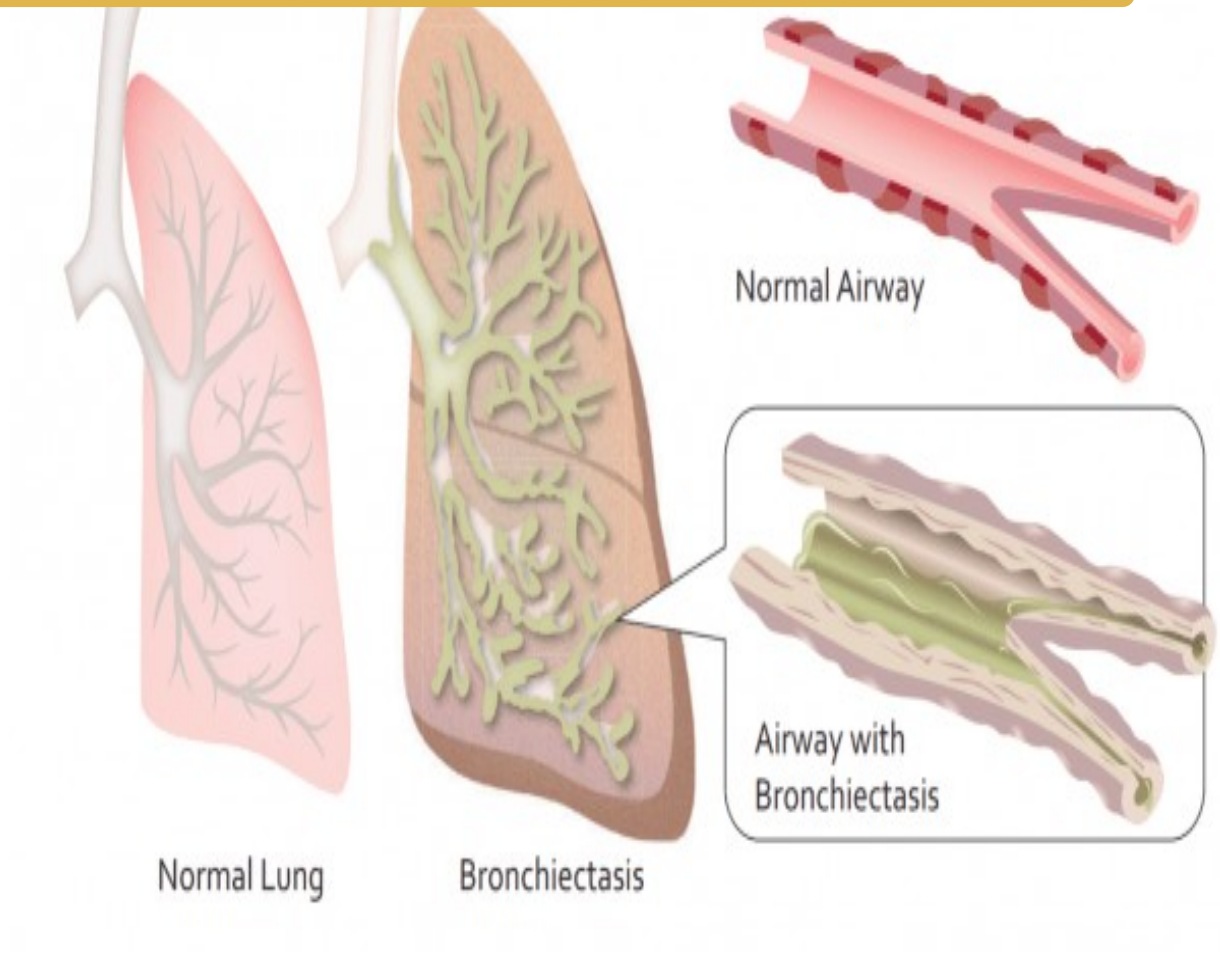
Etiology: ***Infections + Bronchial obstruction***

Both should be present for the development of bronchiectasis and either of them may come first.

Bronchiectasis



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Pathogenesis of Bronchiectasis

1-Bronchial infection:

Causative organism: Staphylococcus, streptococcus. pneumococcus, bacillus coli and haemophilus influenzae.

2- Bronchial obstructi

1) **Foreign body**
2) **Mucus plugs**
3) **Tumors**



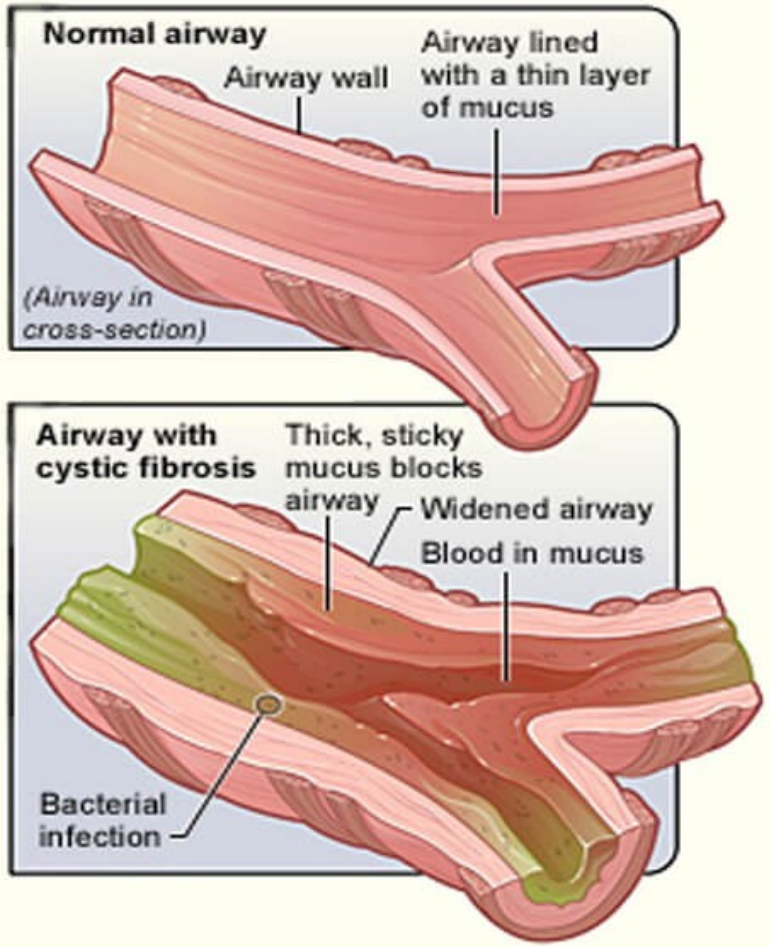
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Pathogenesis of Bronchiectasis

4) Congenital obstruction in:

a- Mucoviscidosis [Cystic fibrosis or fibrocystic disease]:

It is a genetic disease characterized by production of abnormally thick and viscid mucus obstructing the bronchi and bronchioles. This disease



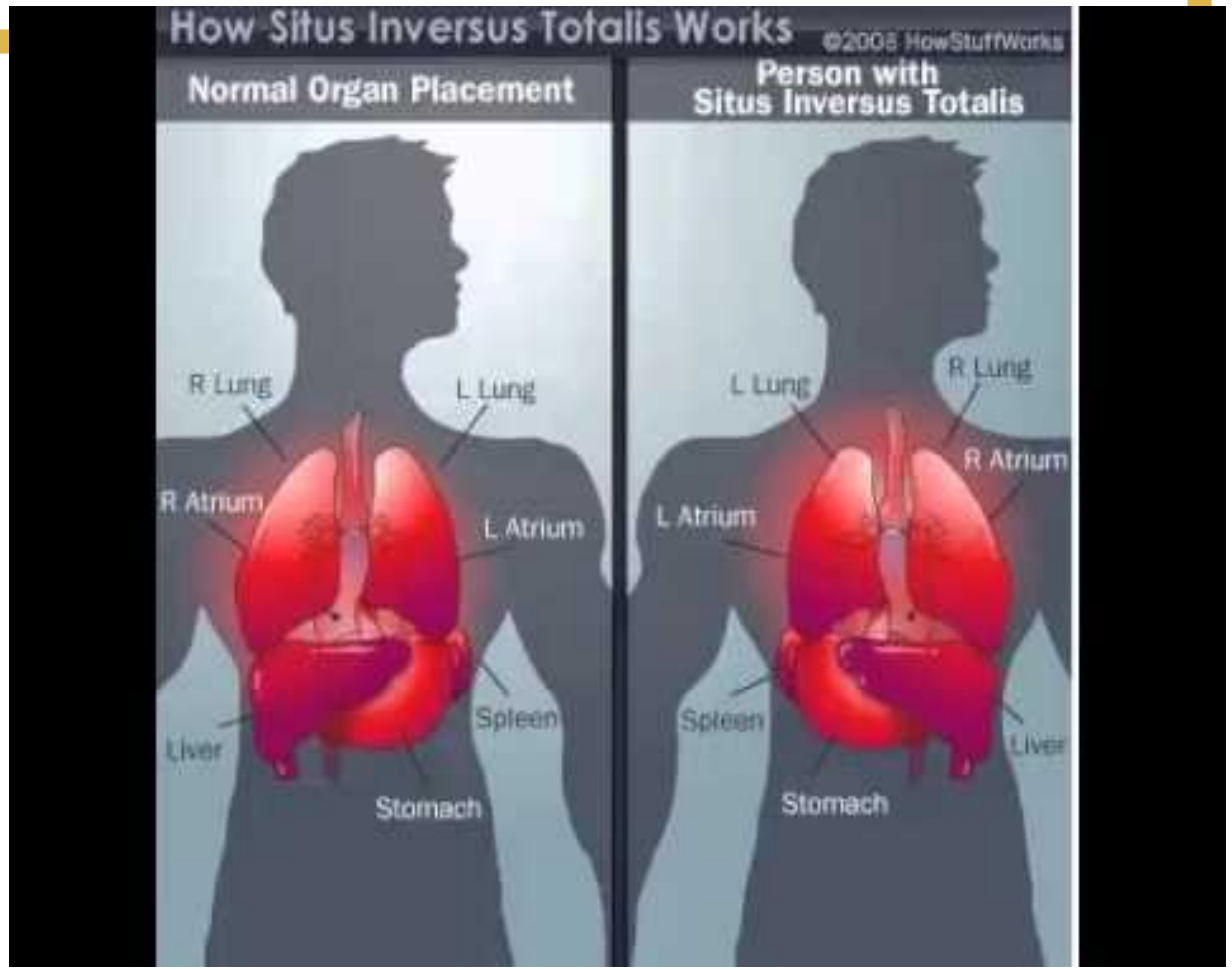
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Pathogenesis of Bronchiectasis

b- Kartagener's syndrome:

It is an autosomal recessive condition caused by immotile
Cilia.

It is characterized clinically by: ***bronchiectasis, chronic sinusitis, and situs-inversus*** (a congenital condition where the major visceral organs are anatomically reversed compared with their normal anatomical positions).



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Pathogenesis of Bronchiectasis

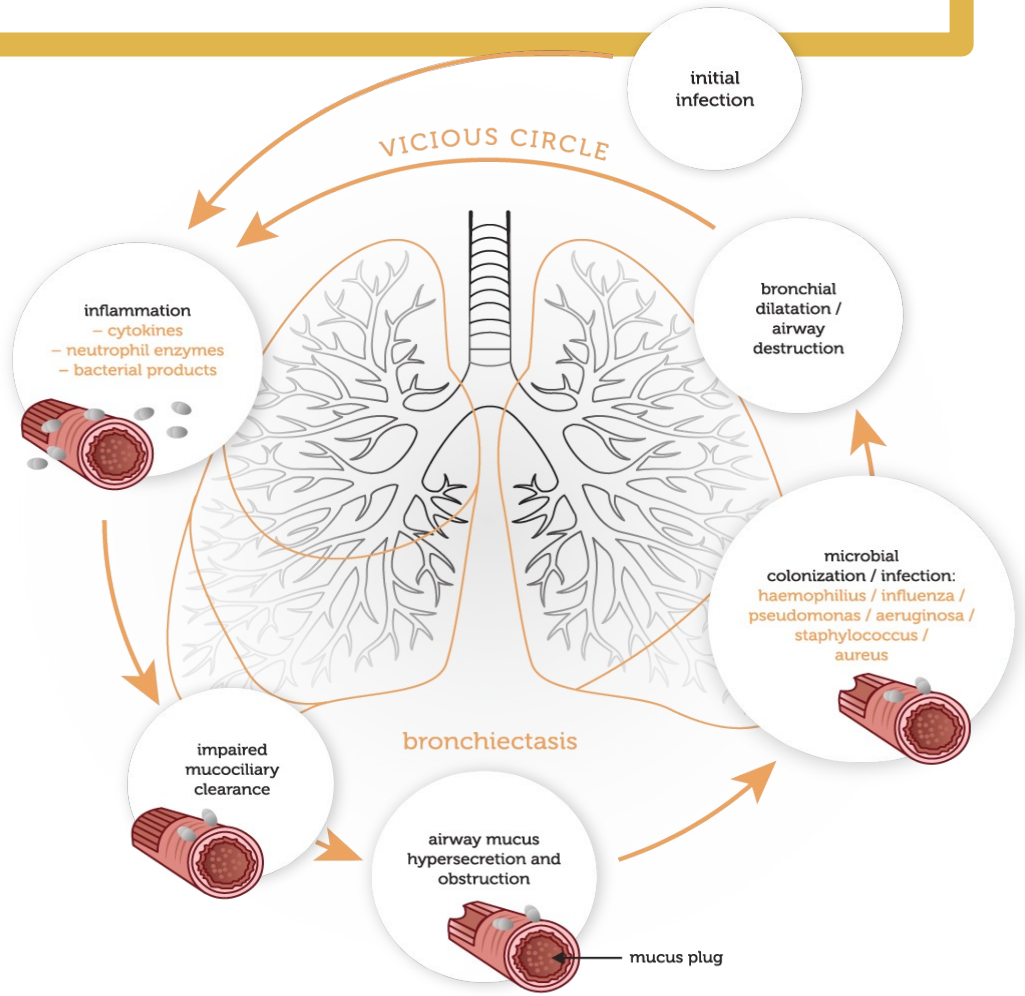
Mechanism of bronchiectasis:

a-Destruction of *the lining bronchial epithelium*. This interferes with cough reflex causing retention of secretions which allows further infection.

b- Destruction of *the musculo-elastic tissue* in the bronchial wall with replacement with *fibrosis,* which lead to weakness in the wall.

c- Infection spreads from the bronchi to the surrounding lung causing pneumonitis which heals by fibrosis.

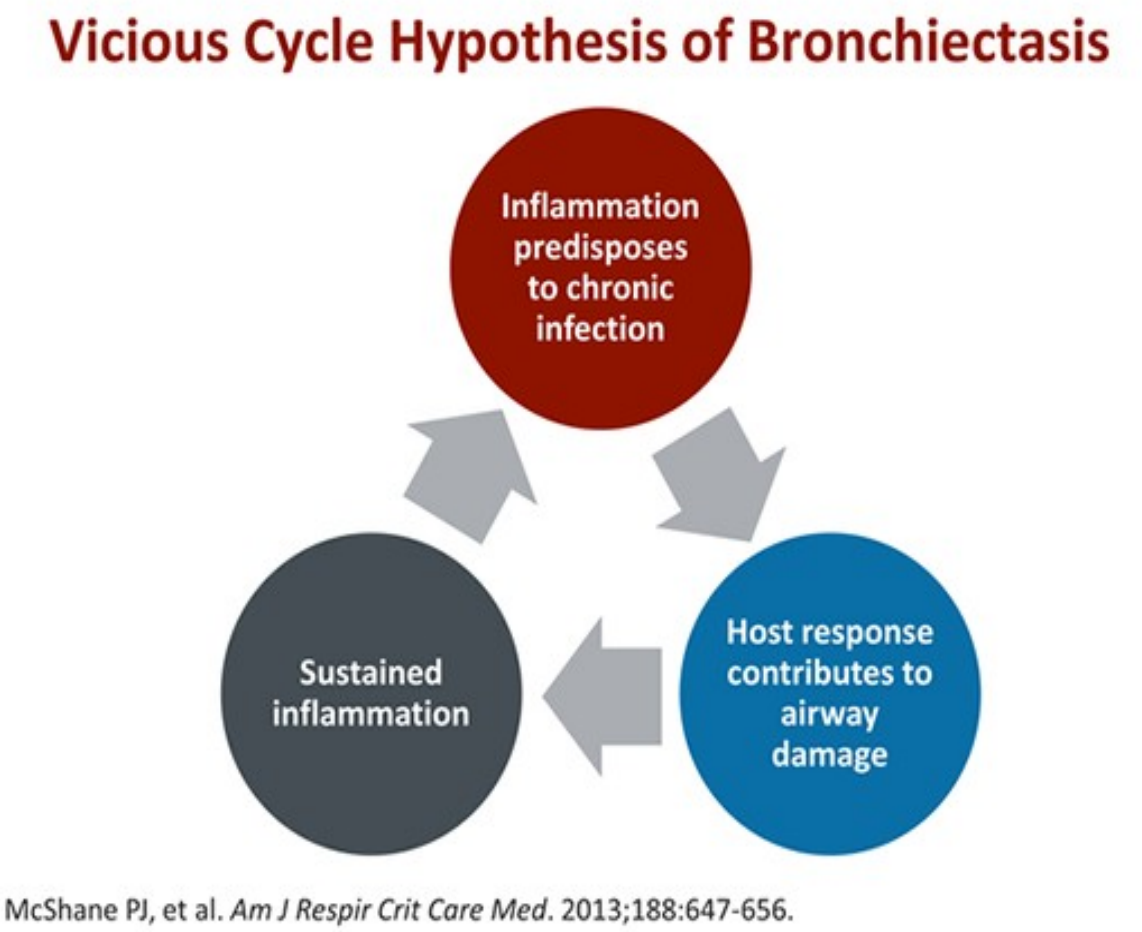
This fibrous tissue pulls on the weak bronchial wall causing its dilatation



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Pathogenesis of Bronchiectasis

- Obstruction causes stasis that predisposes to infection.
- Infection destroys the elastic tissue in the wall of bronchi
- Persistent obstruction leads to collapse & fibrosis of alveoli with increased negativity of the intrathoracic pressure (due to collapse)
- Eventually this leads to dilatation of weakened bronchi.



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Bronchiectasis

Gross picture:

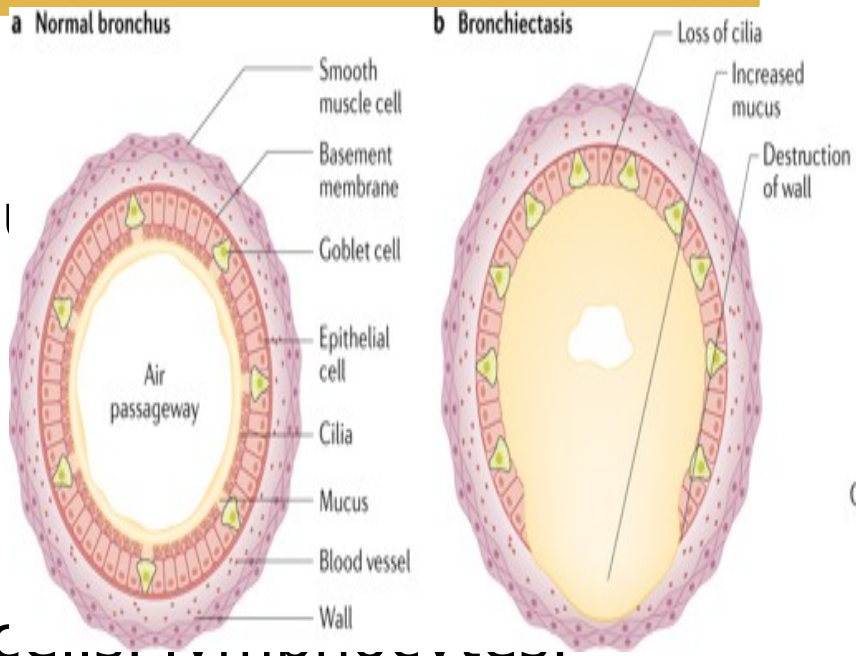
- The lesion usually **bilateral** ,more common in the **lower lobe**.
- The dilatation in the bronchi may be **cylindrical, fusiform and saccular.**
- The dilated bronchi contain **viscid foul smelling mucopurulent blood stained exudates.**
- The lining mucosa may be **atrophic ,ulcerated or covered by granulation tissue.**
- The dilated bronchi are always



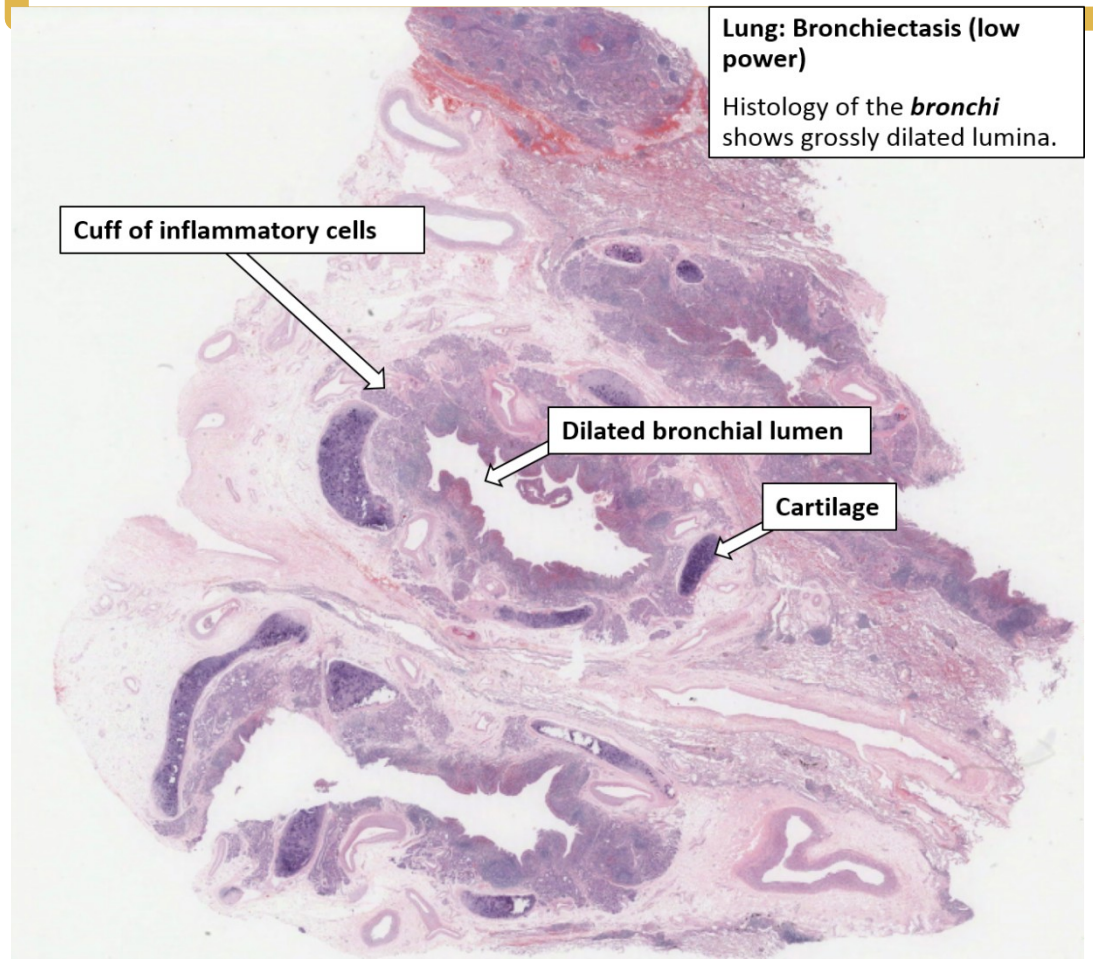
Bronchiectasis

Microscopically:

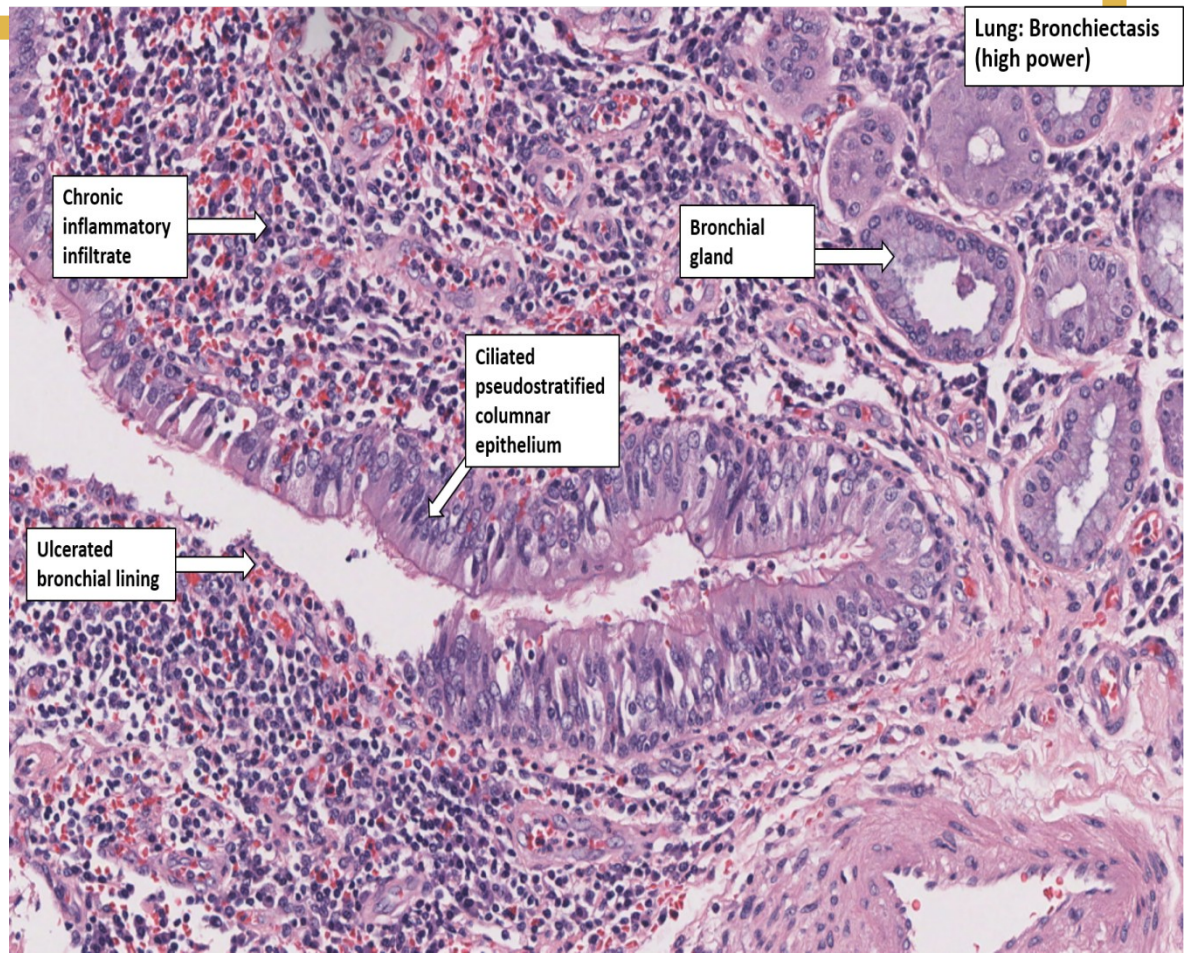
- The **bronchi** are dilated and show:
    1. Destruction of the musculoelastic tissu
    2. fibrosis and inflammatory cells.
- The **lumen** contains:
    1. sheded epithelium
    2. mucous
    3. inflammatory cells (polymorphs, pus cells, lymphocytes, macrophages and plasma cells)
- The bronchial **epithelium** may show squamous metaplasia or ulceration.
- The adjacent **lung tissue and pleura** show inflammatory changes.



Bronchiectasis



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Bronchiectasis

Complications:

- Lung abscess and wet (moist) gangrene.
- Hemoptysis.
- Empyema and pyopneumothorax.
- Pulmonary fibrosis leading to pulmonary hypertension and right sided heart failure [Cor-Pulmonale].
- Systemic pyaemia.
- Secondary amyloidosis.
- Clubbing of the fingers.
- Squamous cell carcinoma on top of squamous metaplasia.



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Lecture Quiz

1- Singer nodule is:

a- Squamous metaplsia of the larynx
b- Acute inflammation of the larynx
c- Chronic specific inflammation of the larynx
d- Chronic non specific inflammation of the larynx
e- Benign neoplasm of the larynx

Lecture Quiz

Write True or False:

1- Bronchiactasis may results in squamous cell carcinoma of the lung

True

2- Cholesteatoma is a specific type of squamous cell papilloma occuring with acute suppurative otitis media.

Falce

SUGGESTED TEXTBOOKS

1- Kaplan Medical step 1, lecture notes in Pathology: Chapter 14, Respiratory system , pp. 125-143, 2017.
2- Hursh Mohan Text Book of Pathology, 7th ed. (2015): Chapter 14, Respiratory system, pp. 442-488.
3- Hursh Mohan Text Book of Pathology, 7th ed. (2015): Chapter 15, eye, ENT and neck, pp. 495-500
4- Robbins basic of Pathology, 10th ed. (2018): Chapter 13, Lung. pp. 495-549


Thank you
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